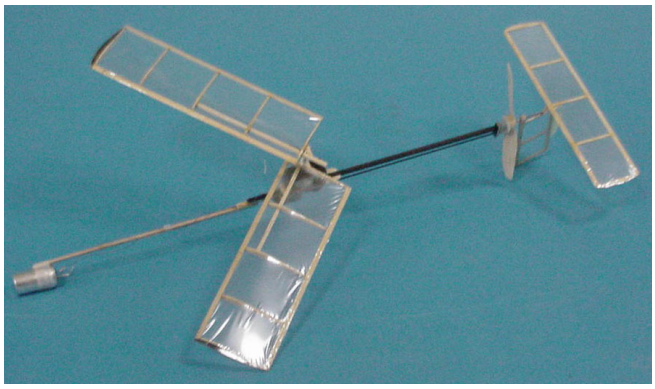
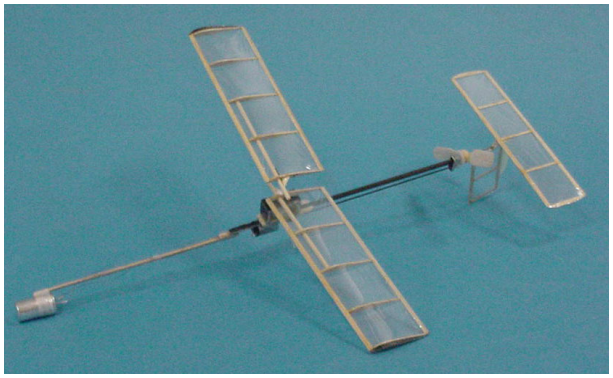
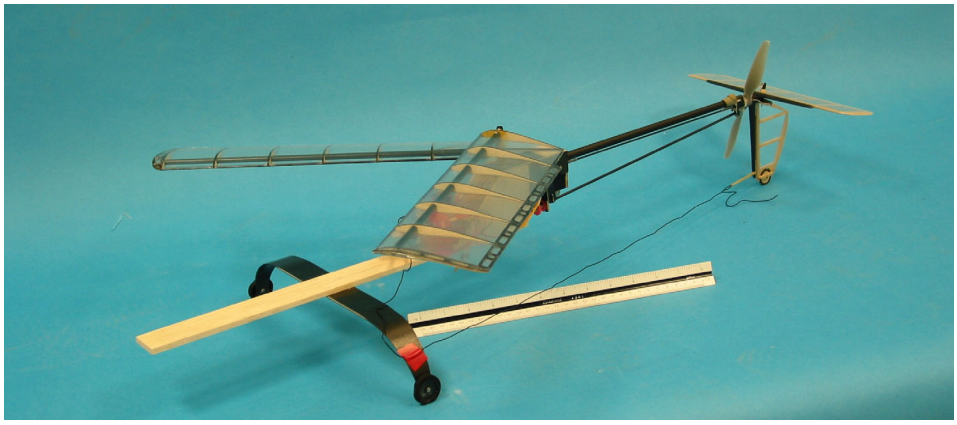
SAMARA

(A Stop-Rotor Hybrid Micro Air Vehicle)







The Samara is a novel stop-rotor converting vehicle that combines the slow flying and near vertical ascent capabilities of rotary wing operation with the fast, efficient flight of fixed wing aircraft. A pair of single-blade, rotary/fixed wing panels is attached at the roots to separate coaxial shafts. For low-speed flight the wing panels are driven as contra-rotating rotors for lift. A pusher propeller provides thrust and control surfaces in the propeller wash give and pitch, yaw, and roll control. In fixed wing flight the wing panels are stopped opposite each other to become a conventional wing. This configuration eliminates the airflow reversal over the wing that occurs upon conversion in other stop-rotor designs. A 300-gram radio controlled vehicle is now in flight test, and computational fluid dynamics is being used to refine the design. Samara will provide a small, maneuverable sensor platform for confined urban environments.

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